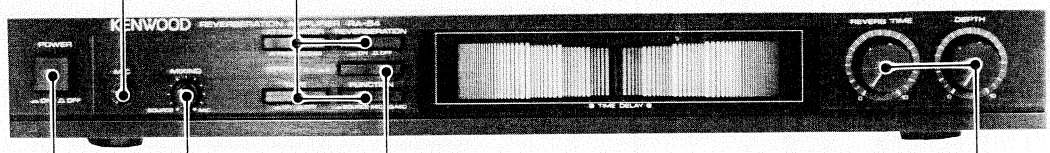
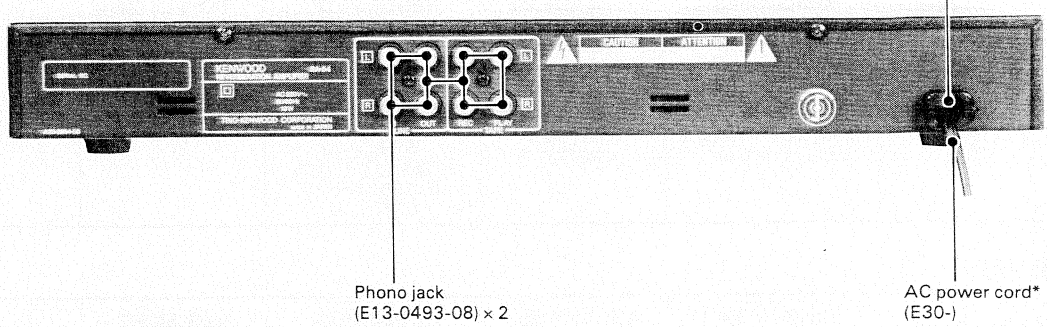
SERVICE MANUAL

KENWOOD

RA-54

REVERBERATION AMPLIFIER

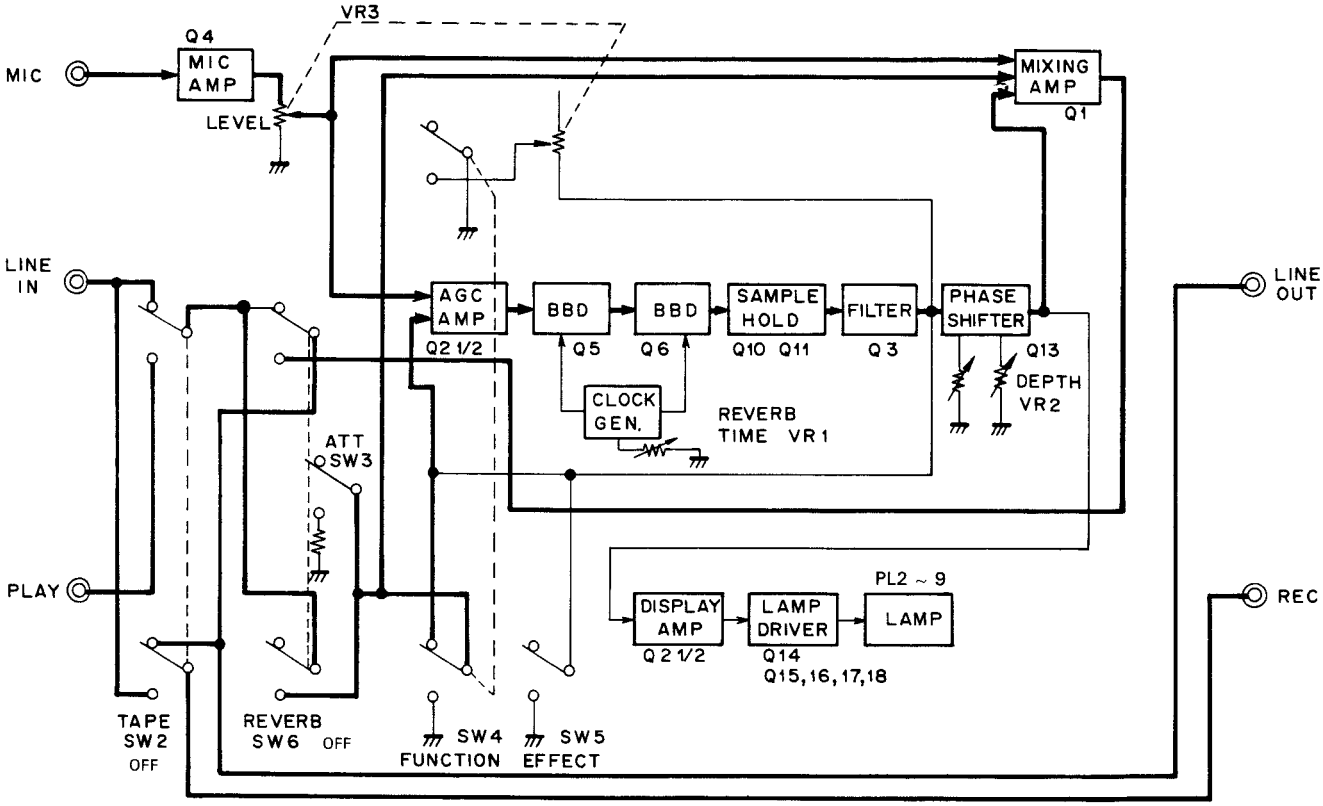




*Refer to Parts List on page 6.
Photo is RA-54 (Black version)
S: Silver version
B: Black version

BLOCK DIAGRAM/ADJUSTMENT/REGLAGE/ABGLEICH

BLOCK DIAGRAM



ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	REVERBERATION TIME	400 Hz, 150 mV to L channel of LINE IN.	R channel of LINE OUT.	TAPE: OFF REVERBERATION: ON REVERB FUNCTION: SOURCE EFFECT: 2 ATTENUATOR: 0 dB REVERB TIME: 10 DEPTH: 10	VR 4	143 mV	

REGLAGE

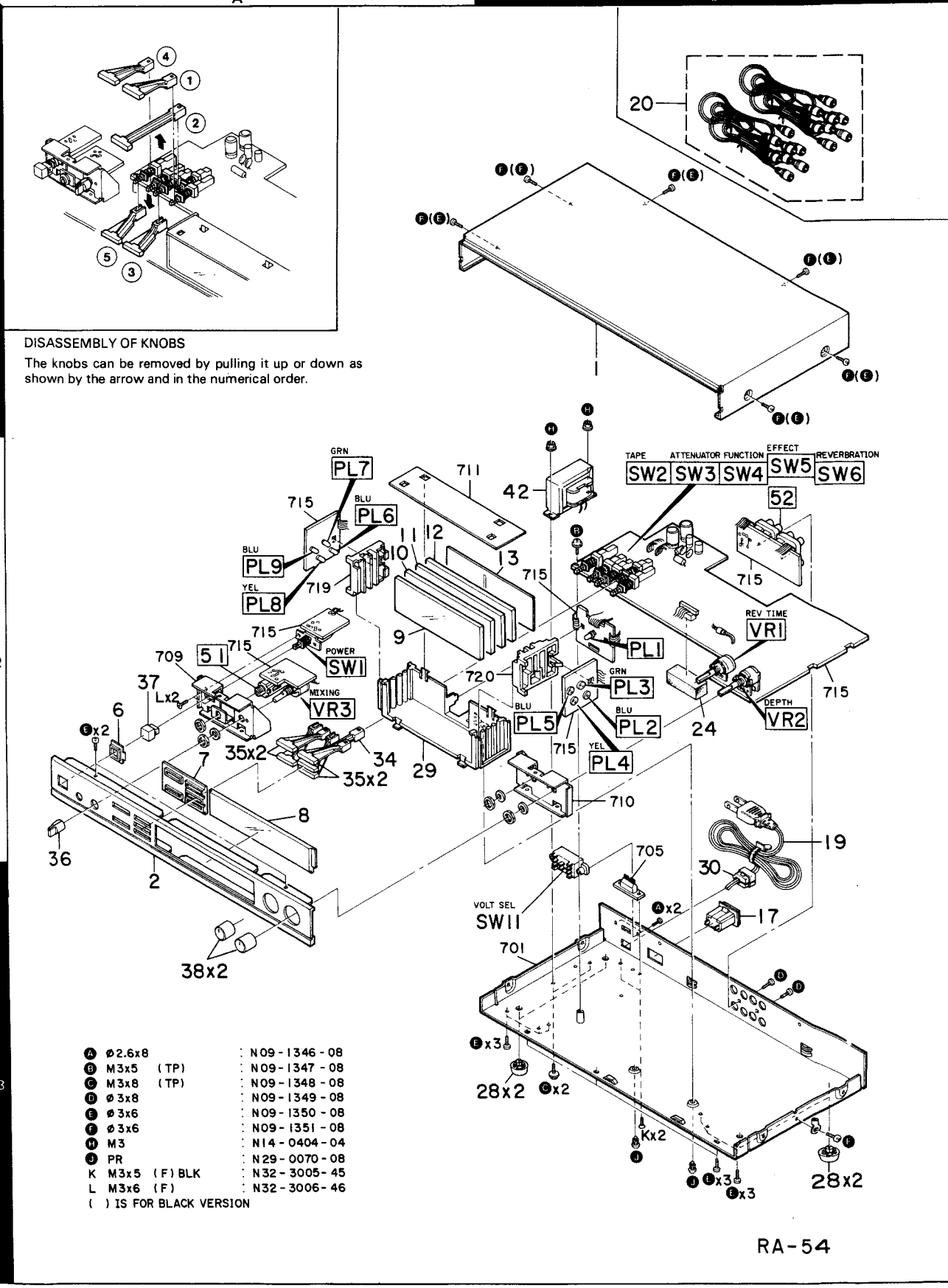
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
1	TEMPS DE REVERBERATION	400 Hz, 150 mV au canal gauche de la prise phons LINE IN.	Le canal droit de la prise phons LINE OUT.	TAPE: OFF REVERBERATION: ON REVERB FUNCTION: SOURCE EFFECT: 2 ATTENUATOR: 0 dB REVERB TIME: 10 DEPTH: 10	VR 4	143 mV	

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	ABGLEICHE PUNKTE	ABGLEICHEN FÜR	ABB.
1	NACHHALL-DAUER	400 Hz, 150 mV auf linken Kanal von Phono-Buchse LINE IN.	Rechten Kanal von Phono-Buchse LINE OUT.	TAPE: OFF REVERBERATION: ON REVERB FUNCTION: SOURCE EFFECT: 2 ATTENUATOR: 0 dB REVERB TIME: 10 DEPTH: 10	VR 4	143 mV	

EXPLODED VIEW

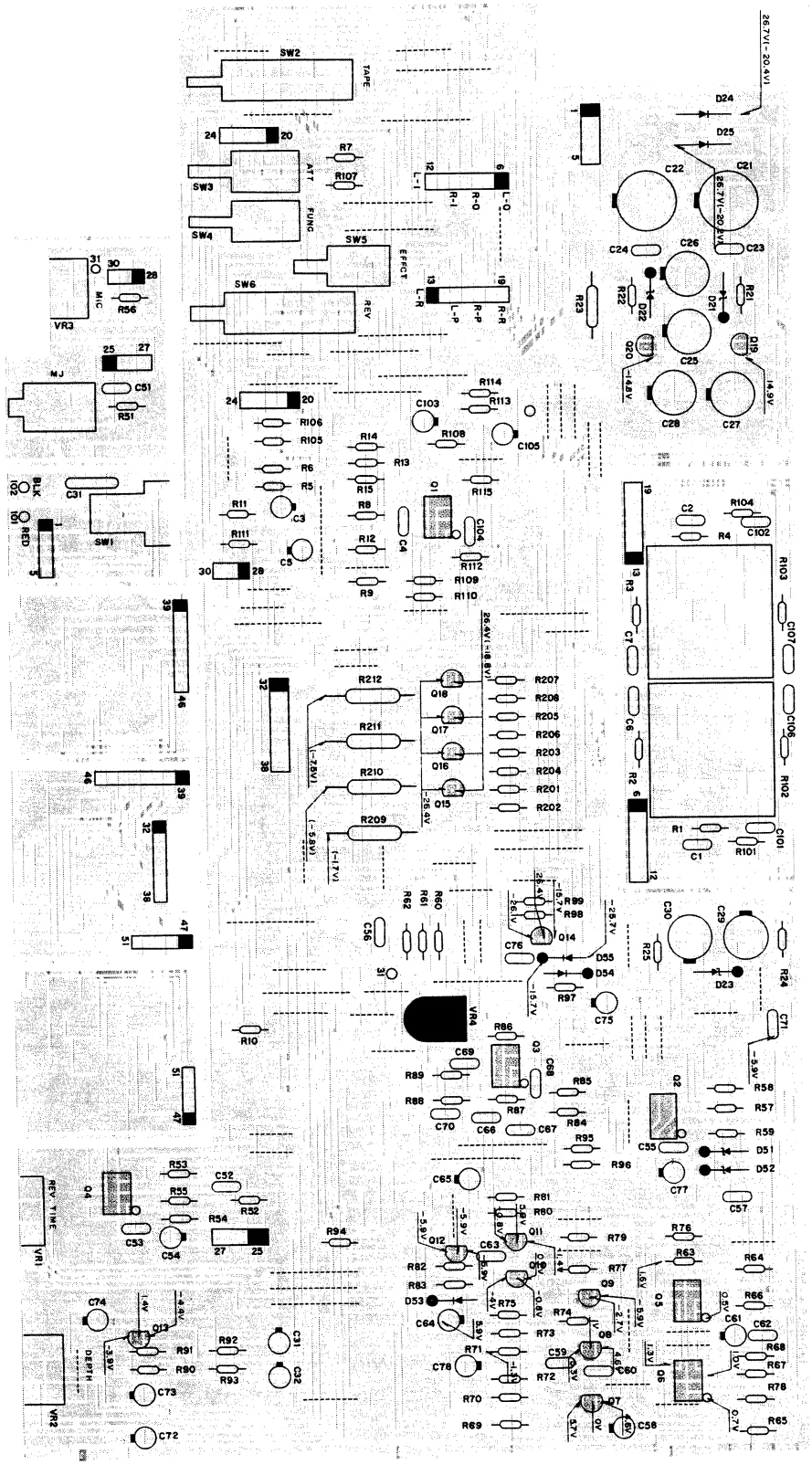
Refer to parts list on page 6.



Parts with the exploded numbers larger than 700 are not supplied.

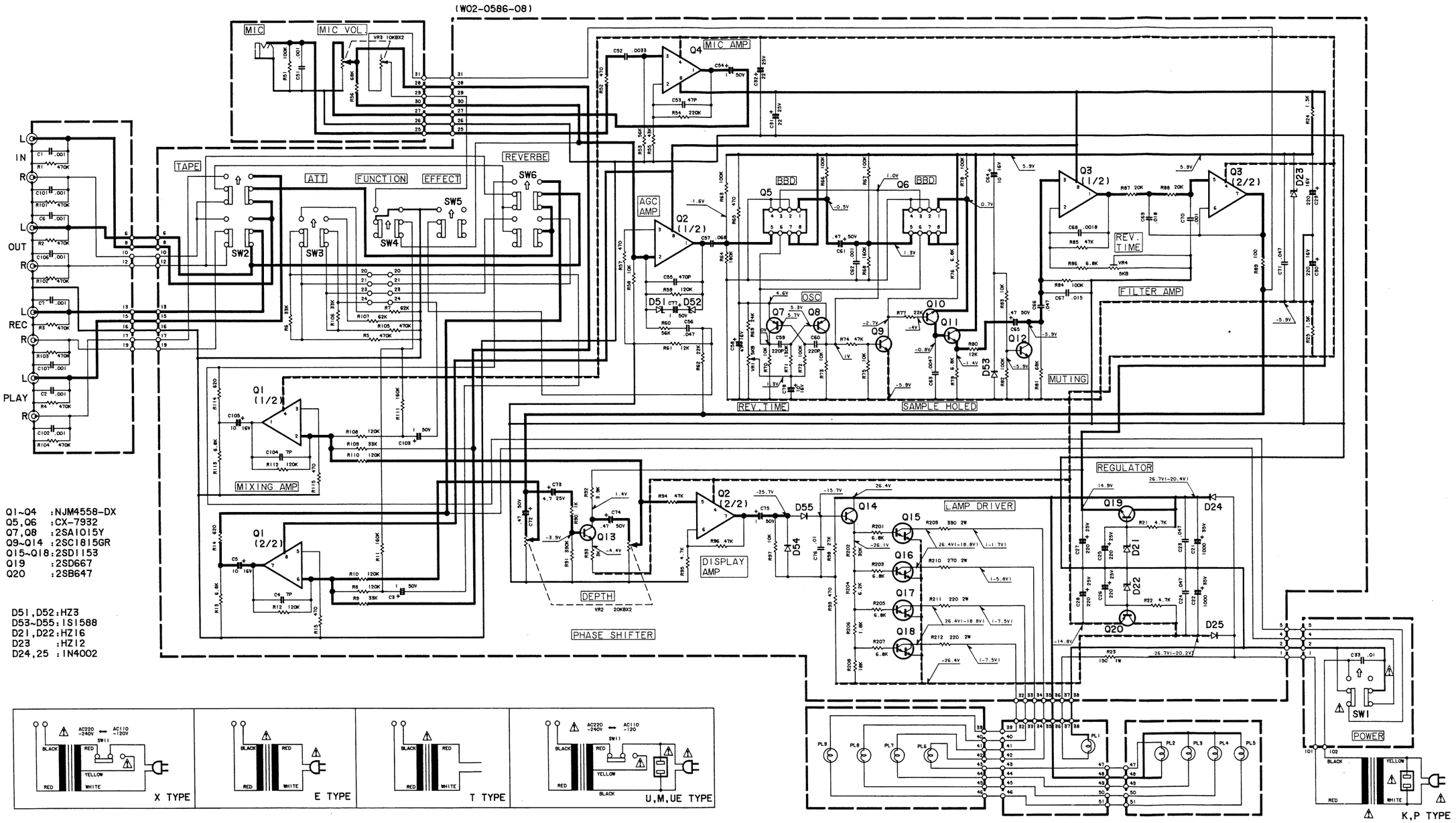
PC BOARD

PC BOARD (W02-0586-08) Component side view



Refer to the schematic diagram for the values of resistors and capacitors.
The PC board drawing is viewing from the side easy to check.

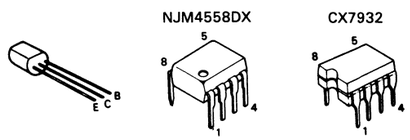
(W02-0586-08)



Q1~Q4 :NJM4558-DX
Q5,Q6 :CX-7932
Q7,Q8 :2SA1015Y
Q9~Q14 :2SC1815GR
Q15~Q18:2SD1153
Q19 :2SD667
Q20 :2SB647

D51,D52:HZ3
D53~D55:1S1588
D21,D22:HZ16
D23 :HZ12
D24,25 :1N4002

2SA1015
2SB647
2SC1815
2SD667
2SD1153



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

RA-54

KENWOOD

PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
RA-54 (Silver)						
1	1B		A01-1315-08	METALLIC CABINET		
2	2A	*	A20-4436-08	FRONT PANEL	KPUMX	
2	2A	*	A20-4436-08	FRONT PANEL	UEE	
2	2A	*	A20-4437-08	FRONT PANEL	T	
6	2A		B07-1296-08	ESCUTCHEON (POWER)		
7	2A		B07-1297-08	ESCUTCHEON (ATT,REV,ETC.)		
8	2A	*	B11-0095-08	FILTER-1		
9	2A		B11-0059-08	FILTER-2		
10	2A		B11-0060-08	FILTER-3		
11	2A		B11-0061-08	FILTER-4		
12	2B		B11-0062-08	FILTER-5		
13	2B		B11-0063-08	FILTER-6		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-03	WARRANTY CARD	X	
-			B46-0097-03	WARRANTY CARD	T	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-03	WARRANTY CARD	E	
-		*	B50-5689-00	INSTRUCTION MANUAL(ENGLISH)	KPUMX	
-		*	B50-5689-00	INSTRUCTION MANUAL(ENGLISH)	UEE	
-		*	B50-5690-00	INSTRUCTION MANUAL(FRENCH)	PMXE	
-		*	B50-5691-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-5692-00	INSTRUCTION MANUAL(ARABIC)	M	
-		*	B50-5693-00	INSTRUCTION MANUAL(ENGLISH)	T	
-		*	B50-5694-00	INSTRUCTION MANUAL(G,D,I)	E	
-			B58-0223-04	CAUTION CARD	U	
-			B58-0269-04	CAUTION CARD	K	
-			B58-0513-04	CAUTION CARD	UE	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
⚠ 17	3B		E03-0036-05	AC OUTLET	KUMUE	
⚠ 17	3B	*	E03-0073-08	AC OUTLET	P	
⚠ 19	2B		E30-0651-08	AC POWER CORD	E	
⚠ 19	2B		E30-0658-08	AC POWER CORD	UMUE	
⚠ 19	2B		E30-0659-08	AC POWER CORD	K	
⚠ 19	2B		E30-0660-08	AC POWER CORD	T	
⚠ 19	2B		E30-0661-08	AC POWER CORD	X	
⚠ 19	2B	*	E30-0985-08	AC POWER CORD	P	
20	1B		E30-0745-08	AUDIO CORD ASSY		
24	2B		G13-0156-08	CUSHION		
-		*	H01-5451-08	ITEM CARTON BOX	KPUMX	
-		*	H01-5451-08	ITEM CARTON BOX	UEE	
-		*	H01-5453-08	ITEM CARTON BOX	T	
-			H10-1730-08	POLYSTYRENE FOAMED FIXTURE		
-			H25-0078-04	PROTECTION BAG (235X315)		
-			H25-0219-08	BAG		
28	3B		J02-0146-08	FOOT		
29	2A		J19-2116-08	FILTER BOX		
⚠ 30	2B		J42-0099-08	POWER CORD BUSHING		
-			J61-0019-05	WIRE BAND		

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S: South Africa T: England U: PX(Far East, Hawaii)
UE: AAFES(Europe) X: Australia M: Other Areas

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PARTS LIST

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
34	2A		K27-1259-08	KNOB (EFFECT)		
35	2A		K27-1260-08	KNOB(BTN) (ATT,REV,TAPE,S/MIC)		
36	2A		K29-0376-14	KNOB (MIXING)		
37	2A		K29-1446-04	KNOB ASSY(BTN) (POWER)		
38	3A	*	K29-2132-08	KNOB (REVERB TIME,DEPTH)		
⚠ 42	2B		L01-3651-08	POWER TRANSFORMER	KP	
⚠ 42	2B		L01-3652-08	POWER TRANSFORMER	E	
⚠ 42	2B		L01-3655-08	POWER TRANSFORMER	UMUE	
⚠ 42	2B		L01-3657-08	POWER TRANSFORMER	XT	
A	3B		N09-1346-08	SCREW(Ø2.6X8,VOLTAGE SELECTOR)	UMUE	
B	2B		N09-1347-08	SCREW(M3X5,PC BOARD)		
C	3B		N09-1348-08	SCREW(M3X8,POWER TRANSFORMER)		
D	3B		N09-1349-08	SCREW(Ø3X8,PHONO JACK)		
E	2A		N09-1350-08	SCREW(Ø3X6,FRONT PANEL)		
F	1B		N09-1351-08	SCREW(Ø3X6,METALLIC CABINET)		
F	3B		N09-1351-08	SCREW(Ø3X6,EARTH LUG)		
H	1B		N14-0404-04	NUT (M3,POWER TRANSFORMER)		
J	3B		N29-0070-08	PUSH RIVET(FILTER BOX)		
⚠ SW11	3B		S31-2087-08	SLIDE SWITCH(VOLTAGE SELECTOR)	UMUE	
RA-54 (Black)						
1	1B	*	A01-1422-08	METALLIC CABINET		
2	2A	*	A20-4438-08	FRONT PANEL	KPUMX	
2	2A	*	A20-4438-08	FRONT PANEL	UEE	
2	2A	*	A20-4439-08	FRONT PANEL	T	
6	2A		B07-1296-08	ESCUTCHEON (POWER)		
7	2A		B07-1297-08	ESCUTCHEON (ATT,REV,ETC.)		
8	2A	*	B11-0095-08	FILTER-1		
9	2A		B11-0059-08	FILTER-2		
10	2A		B11-0060-08	FILTER-3		
11	2A		B11-0061-08	FILTER-4		
12	2A		B11-0062-08	FILTER-5		
13	2B		B11-0063-08	FILTER-6		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-03	WARRANTY CARD	X	
-			B46-0097-03	WARRANTY CARD	T	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-03	WARRANTY CARD	E	
-		*	B50-5689-00	INSTRUCTION MANUAL(ENGLISH)	KPUMX	
-		*	B50-5689-00	INSTRUCTION MANUAL(ENGLISH)	UEE	
-		*	B50-5690-00	INSTRUCTION MANUAL(FRENCH)	PMXE	
-		*	B50-5691-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-5692-00	INSTRUCTION MANUAL(ARABIC)	M	
-		*	B50-5693-00	INSTRUCTION MANUAL(ENGLISH)	T	
-		*	B50-5694-00	INSTRUCTION MANUAL(G,D,I)	E	
-			B58-0223-04	CAUTION CARD	U	
-			B58-0269-04	CAUTION CARD	K	
-			B58-0513-04	CAUTION CARD	UE	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
⚠ 17	3B		E03-0036-05	AC OUTLET	KUMUE	
⚠ 17	3B	*	E03-0073-08	AC OUTLET	P	
⚠ 19	2B		E30-0651-08	AC POWER CORD	E	

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⚠	19	2B		E30-0658-08	AC POWER CORD	UMUE	
⚠	19	2B		E30-0659-08	AC POWER CORD	K	
⚠	19	2B		E30-0660-08	AC POWER CORD	T	
⚠	19	2B		E30-0661-08	AC POWER CORD	X	
⚠	19	2B	*	E30-0985-08	AC POWER CORD	P	
	20	1B		E30-0745-08	AUDIO CORD ASSY		
	24	2B		G13-0156-08	CUSHION		
	-		*	H01-5452-08	ITEM CARTON BOX	KPUMX	
	-		*	H01-5452-08	ITEM CARTON BOX	UEE	
	-		*	H01-5454-08	ITEM CARTON BOX	T	
	-			H10-1730-08	POLYSTYRENE FOAMED FIXTURE		
	-			H25-0078-04	PROTECTION BAG (235X315)		
	-			H25-0219-08	BAG		
	28	3B		J02-0146-08	FOOT		
	29	2A		J19-2116-08	FILTER BOX		
⚠	30	2B		J42-0099-08	POWER CORD BUSHING		
	-			J61-0019-05	WIRE BAND		
	34	2A		K27-1261-08	KNOB (EFFECT)		
	35	2A		K27-1262-08	KNOB(BTN) (ATT,REV,TAPE,S/MIC)		
	36	2A		K29-1327-04	KNOB (MIXING)		
	37	2A	*	K29-2133-08	KNOB ASSY(BTN) (POWER)		
	38	3A	*	K29-2134-08	KNOB (REVERB TIME,DEPTH)		
⚠	42	2B		L01-3651-08	POWER TRANSFORMER	KP	
⚠	42	2B		L01-3652-08	POWER TRANSFORMER	E	
⚠	42	2B		L01-3655-08	POWER TRANSFORMER	UMUE	
⚠	42	2B		L01-3657-08	POWER TRANSFORMER	XT	
	A	3B		N09-1346-08	SCREW(Ø2.6X8,VOLTAGE SELECTOR)	UMUE	
	B	2B		N09-1347-08	SCREW(M3X5,PC BOARD)		
	C	3B		N09-1348-08	SCREW(M3X8,POWER TRANSFORMER)		
	D	3B		N09-1349-08	SCREW(Ø3X8,PHONO JACK)		
	E	2A		N09-1350-08	SCREW(Ø3X6,FRONT PANEL)		
	E	1B		N09-1350-08	SCREW(Ø3X6,METALLIC CABINET)		
	F	3B		N09-1351-08	SCREW(Ø3X6,EARTH LUG)		
	H	1B,2B		N14-0404-04	NUT (M3,POWER TRANSFORMER)		
	J	3B		N29-0070-08	PUSH RIVET(FILTER BOX)		
⚠	SW11	3B		S31-2087-08	SLIDE SWITCH(VOLTAGE SELECTOR)	UMUE	
	REVERB AMP (W02-0640-08)						
	PL1	2B		B30-0403-08	LAMP(0.05A 14V)		
	PL2	2B		B30-1045-08	LAMP(0.05A 14V) BLUE		
	PL3	2B		B30-0404-08	LAMP(0.05A 14V) GREEN		
	PL4 ,5	2B		B30-1044-08	LAMP(0.05A 14V) YELLOW		
	PL6	2A		B30-1045-08	LAMP(0.05A 14V) BLUE		
	PL7	2A		B30-0404-08	LAMP(0.05A 14V) GREEN		
	PL8 ,9	2A		B30-1044-08	LAMP(0.05A 14V) YELLOW		
	C1 ,2			CQ92M1H102K	MYLAR 1000PF K		
	C3			CE04W1H1R0M	ELECTRO 1.0UF 50WV		
	C4			CC45SL1H7R0K	CERAMIC 7.0PF K		
	C5			CE04W1C100M	ELECTRO 10UF 16WV		
	C6 ,7			CQ92M1H102K	MYLAR 1000PF K		
	C21 ,22			CE04W1V102M	ELECTRO 1000UF 35WV		
	C23 ,24			CC45YF1H473K	CERAMIC 0.047UF K		

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C25 -28			CE04W1E221M	ELECTRO 220UF 25WV		
C29 ,30			CE04W1C221M	ELECTRO 220UF 16WV		
C31 ,32			CE04W1E220M	ELECTRO 22UF 25WV		
⚠ C33			CC45YE2H103K	CERAMIC 0.01UF K		
C51			CQ92M1H102K	MYLAR 1000PF K		
C52			CQ92M1H333K	MYLAR 0.033UF K		
C53			CC45SL1H470K	CERAMIC 47PF K		
C54			CE04W1H1R0M	ELECTRO 1.0UF 50WV		
C55			CC45SL1H471K	CERAMIC 470PF K		
C56			CQ92M1H473K	MYLAR 0.047UF K		
C57			CQ92M1H683K	MYLAR 0.068UF K		
C58			CE04W1C470M	ELECTRO 47UF 16WV		
C59 ,60			CC45YB1H221K	CERAMIC 220PF K		
C61			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C62			CQ92M1H102K	MYLAR 1000PF K		
C63			CQ92M1H472K	MYLAR 4700PF K		
C64			CE04W1C100M	ELECTRO 10UF 16WV		
C65			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C66			CQ92M1H473K	MYLAR 0.047UF K		
C67			CQ92M1H153K	MYLAR 0.015UF K		
C68			CQ92M1H182K	MYLAR 1800PF K		
C69			CQ92M1H183K	MYLAR 0.018UF K		
C70			CQ92M1H102K	MYLAR 1000PF K		
C71			CC45YF1H473K	CERAMIC 0.047UF K		
C72			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C73			CE04W1E4R7M	ELECTRO 4.7UF 25WV		
C74			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C75			CE04W1H1R0M	ELECTRO 1.0UF 50WV		
C76			CQ92M1H103K	MYLAR 0.010UF K		
C77			CE04W1H1R0M	ELECTRO 1.0UF 50WV		
C78			CE04W1C100M	ELECTRO 10UF 16WV		
C101,102			CQ92M1H102K	MYLAR 1000PF K		
C103			CE04W1H1R0M	ELECTRO 1.0UF 50WV		
C104			CC45SL1H7R0K	CERAMIC 7.0PF K		
C105			CE04W1C100M	ELECTRO 10UF 16WV		
C106,107			CQ92M1H102K	MYLAR 1000PF K		
51	2A	*	E11-0158-08	PHONE JACK (HEADPHONE)		
52	2B		E13-0493-08	PHONO JACK (4P)		
R23			RS14AB3A151J	FL-PROOF RS 150 J 1W		
R209			RS14AB3D391J	FL-PROOF RS 390 J 2W		
R210			RS14AB3D271J	FL-PROOF RS 270 J 2W		
R211,212			RS14AB3D221J	FL-PROOF RS 220 J 2W		
VR1	2B		RD1-2018-08	POTENTIOMETER(REVERB TIME)		
VR2	2B		RD6-3043-08	POTENTIOMETER(DEPTH)		
VR3	2A		RD6-3044-08	POTENTIOMETER(MIXING)		
VR4			R12-2026-08	TRIMMING POT.(5KB)REVERB TIME		
⚠ SW1	2A		S40-2158-08	PUSH SWITCH(POWER)		
SW2	2B		S40-4057-08	PUSH SWITCH(TAPE)		
SW3 -5	2B	*	S40-2327-08	PUSH SWITCH(EFFECT,FUNC,ATT)		
SW6	2B		S40-4057-08	PUSH SWITCH(REVERB)		
D21 ,22			HZ16-1	ZENER DIODE		
D23			HZ12A-2	ZENER DIODE		
D24 ,25			1N4002	DIODE		

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Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
D51 ,52			HZ3A-1	ZENER DIODE		
D53 -55			1S1588	DIODE		
Q1 -4			NJM4558DX	IC(OP AMP X2)		
Q5 ,6			CX7932	IC(1024-STAGE BBD)		
Q7 ,8			2SA1015(Y)	TRANSISTOR		
Q9 -14			2SC1815(GR)	TRANSISTOR		
Q15 -18			2SD1153	TRANSISTOR		
Q19			2SD667(C)	TRANSISTOR		
Q20			2SB647(C)	TRANSISTOR		

E: Scandinavia & Europe H:Audio Club K: USA P: Canada
S: South Africa T: England U: PX(Far East, Hawaii)
UE: AAFES(Europe) X: Australia M: Other Areas

⚠ indicates safety critical components.

RA-54

SPECIFICATIONS

Reverberation time	
Reverberating time	0—2.5 sec. (Effect 1)
Delay time	30—80 msec. (Effect 2)
Frequency response	10 Hz—35 kHz, +0 dB, −0.5 dB
Harmonic distortion	Less than 0.01% (20 Hz—20 kHz, output 1 V)
S/N ratio	100 dB (Short-circuited IHF-A network)
Maximum output	7 V (1 kHz, THD 0.01%, RL47 kΩ)
Gain	0 dB
Input impedance	47 kΩ
Output impedance	600Ω
Mic input sensitivity	1 mV
Mic input impedance	36 kΩ
Attenuation	−6 dB at 1 kHz
Input sensitivity	150 mV
Power consumption	18 W
Dimensions	420(W) × 57(H) × 216(D) mm (16-17/32" × 2-13/64" × 8-1/2")
Weight (net)	2.5 kg (5.5 lb)

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui doncerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige, Verbesserungn in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

TRIO-KENWOOD CORPORATION
Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD ELECTRONICS
1315 E. Watsoncenter Rd, Carson, California 90745; U.S.A.
75 Seaview Drive, Secaucus, New Jersey 07094, U.S.A.

TRIO-KENWOOD CANADA INC.,
1070 Jayson Court, Mississauga, Ontario, Canada L4W 2V5

TRIO-KENWOOD ELECTRONICS, N.V.
Leuvensesteenweg 504 B-1930 Zaventem, Belgium

TRIO-KENWOOD ELECTRONICS GmbH
Rudolf-Brass-Str. 20, 6056 Heusenstamm, West Germany

TRIO-KENWOOD FRANCE S.A.
5, Boulevard Ney, 75018 Paris, France

TRIO-KENWOOD (AUSTRALIA) PTY. LTD. (INCORPORATED IN N.S.W.)
4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

KENWOOD & LEE ELECTRONICS, LTD.
Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong

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